

Patent Claims:

1. 1. Electromagnetic actuator with two electromagnets arranged at a spacing distance relative to one another, and an armature (1) that is movable back and forth along a stroke travel distance (I_m) between the electromagnets (2, 3) against the force of two springs (61, 62) acting against each other, characterized in that the springs (61, 62) are pre-stressed in such a manner, so that the same energy (A_1 , A_2) is stored in both springs (61, 62) in connection with a compression of the springs (61, 62) that is prescribed by the stroke travel distance (I_m) of the armature (1).

2. 2. Electromagnetic actuator according to claim 1, characterized in that at least one of the springs (61, 62) comprises a non-linear spring characteristic curve (F1).
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3. 3. Electromagnetic actuator according to claim 2, characterized in that the spring characteristic curve (F1) of at least one of the springs (61, 62) comprises a maximum value (F13) at a position (I_x) of the armature (1) spaced away from the two electromagnets (2, 3).

4. 4. Electromagnetic actuator according to one of the claims 1 to 3, characterized in that setting means (71, 72) for setting the pre-stressing of the springs (61, 62) are provided.

1 5. Electromagnetic actuator according to claim 4,
2 characterized in that measuring means for measuring the
3 progressions of the spring forces of the springs (61, 62)
4 are provided.

1 6. Electromagnetic actuator according to claim 5,
2 characterized in that control means for controlling the
3 setting means in accordance with the measured progressions
4 of the spring forces are provided.

1 7. Method for the adjusting of an electromagnetic actuator
2 with two electromagnets (2, 3) arranged at a spacing
3 distance relative to each other, and an armature (1)
4 movable back and forth along a stroke travel distance
5 between the electromagnets (2, 3) against the force of two
6 springs (61, 62) acting against one another, characterized
7 in that, for each spring (61, 62) the progression (F1, F2)
8 of the spring force is measured, which results if the
9 respective spring (61, 62) is compressed by a spring travel
10 distance corresponding to the stroke travel distance (Im)
11 of the armature (1), that in connection with the measured
12 progressions (F1, F2) of the spring forces, the energy (A1,
13 A2) is determined, which is stored in the respective spring
14 (61, 62) due to the compression thereof, and that the
15 pre-stressing (F10, F20) of one or both springs (61, 62) is
16 set in such a manner so that the same energy (A1, A2) is
17 stored in both springs (61, 62).

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